

A new Genus and Species in the Family Ophidiasteridae (Echinodermata: Asteroidea) from the Vicinity of Lord Howe Island, Tasman Sea

F. W. E. ROWE

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A new genus and species in the asteroid family Ophidiasteridae is described from a specimen collected from Ball's Pyramid (31°46'S; 159°16'E, depth 100-180m), near Lord Howe Island, Tasman Sea. This genus shows affinities with the genera *Cistina* Gray, 1840, *Leiaster* Peters, 1852 and *Devania* Marsh, 1974.

F. W. E. Rowe, Department of Marine Invertebrates, Australian Museum, P. O. Box A285, Sydney South, Australia 2000; manuscript received 20 August 1980, accepted for publication 17 September 1980.

INTRODUCTION

Since H. L. Clark's (1921) revision of the family Ophidiasteridae — which he considered comprised 20 extant genera, seven new genera and two new subgenera have been described. These genera are: *Copidaster* A. H. Clark, 1948; *Celerina* A. M. Clark, 1967; *Drachmaster* Downey, 1970; *Calliophidiaster* Tommasi, 1970; *Heteronardoa* Hayashi, 1973; *Paraferdina* James, 1973 and *Devania* Marsh, 1974. A. M. Clark, 1967, described *Andora* as a subgenus of *Nardoa* Gray. Rowe (1977) raised *Andora* to generic rank, redefining *Andora* as the nominative subgenus and describing a second but new subgenus *Dorana*.

In his assessment of genera within the family, H. L. Clark (1921) laid greatest emphasis on the regular or irregular arrangement of the abactinal plates, the form of the adambulacral armature and the occurrence and arrangement of papulae on the actinal surface. These criteria have been generally adopted by subsequent workers in describing new ophidiasterid taxa.

The type species of the new genus described herein shows affinities with several established genera within the family. It also shows several distinctive features which, according to current concepts of generic limitations within the Ophidiasteridae, require that the species be assigned to a new genus.

SYSTEMATIC DESCRIPTION

Family OPHIDIASTERIDAE Verrill, 1867.

Genus *Oneria* nov.

Description: An ophidiasterid sea-star with seven longitudinal rows of primary abactinal and marginal skeletal plates, quadrilobed, separated laterally so that the internal, connecting plates are visible; actinally, a row of plates adjacent to the adambulacral and twice as numerous as the inferomarginals and a second row corresponding in number to the inferomarginals; all plates smooth, skin covered; skin

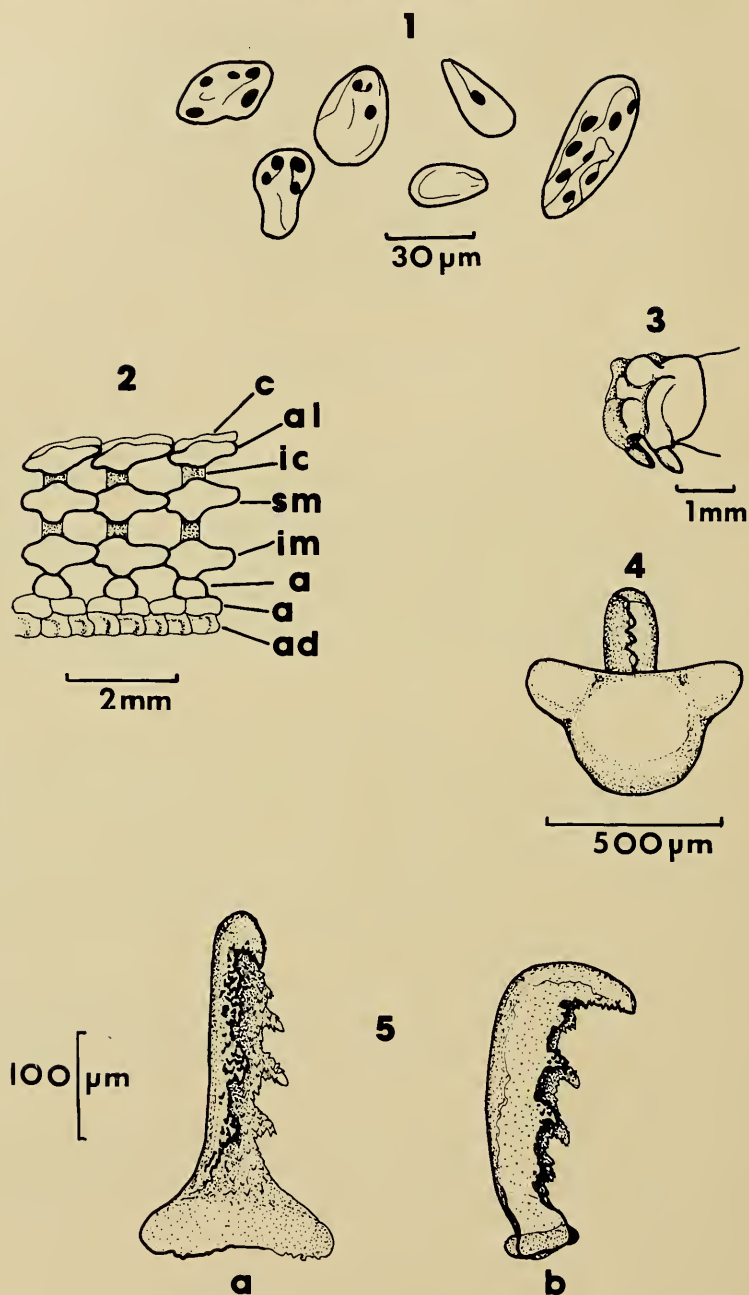


Fig. 1. Perforated skin grains.

Fig. 2. Denuded skeleton of arm, lateral view at half R.

c = carinal plate, al = abactinolateral plate, ic = internal connecting plate, sm = superomarginal, im = inferomarginal plate, a = actinal plate, ad = adambulacral plate.

Fig. 3. Terminal plate, oblique lateral view

Fig. 4. Boat-shaped pedicellaria

Fig. 5. Jaws of pedicellaria

contains small, flat perforated grains; small spines occur on a few marginal plates; adambulacral armature in two rows; papulae in eight longitudinal rows; pedicellariae large, alveolae boat-shaped, jaws laterally compressed and dentate.

Type Species: Oneria tasmanensis n.sp., herein designated.

Etymology: Oneri = Aboriginal for sea-star, gender of genus herein feminine;
tasmanensis = type-locality the Tasman Sea.

Oneria tasmanensis n.sp.

Figs 1-6

Material examined: One specimen, holotype, Australian Museum No. J11715, off Ball's Pyramid (31°46'S: 159°16'E), near Lord Howe Island, Tasman Sea, dredged from about 100-180m, C.S.I.R.O. Fisheries (Dr. J. MacIntyre on "Gascoyne", stn No. G3/255/60), 22.xi.1960.

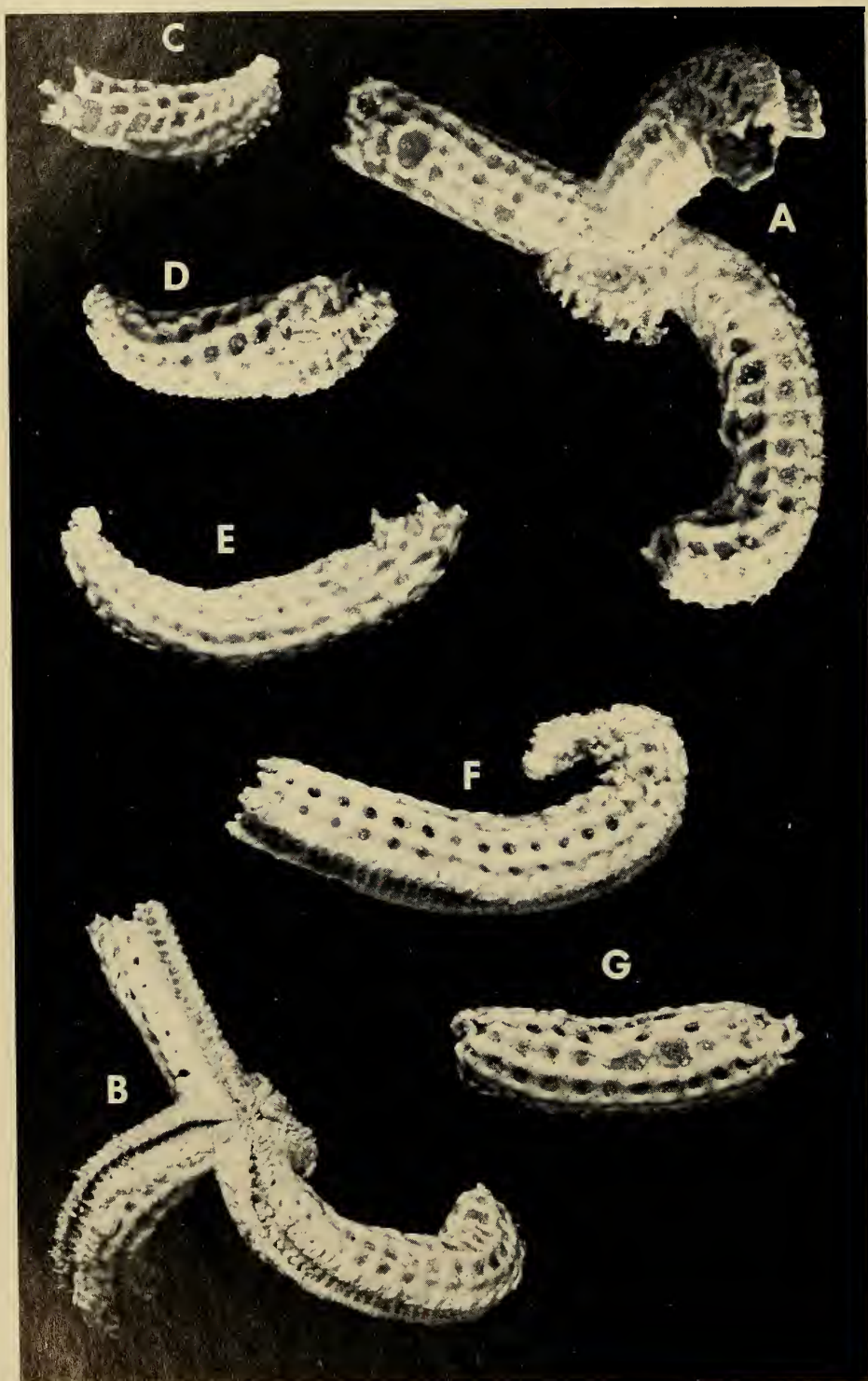
Diagnosis: A species of *Oneria* with irregularly quadrilobed plates; short broad terminal plate with two ventrally directed, ventrally placed spines; furrow spines irregularly two and one per adambulacral plate; subambulacral spines one per plate proximally, one per two plates after half R; alveolae of pedicellariae up to 630µm long; small flat grains in skin up to 67µm long.

Description: The holotype has five arms (all broken) (Fig. 6) R = 30mm (maximum), r = 3.5mm, br = 4mm, R = 8.57r and 7.5br. The disc is small and arms more or less cylindrical, slightly constricted at the base and tapering slightly distally to a width of 2.25mm. The body is covered by a thin skin which does not obscure the limits of the skeletal plates. The skin contains oval, flat, perforated grains (37-67µm x 18-37µm) (Fig. 1) which are most numerous in the disc area. The madreporite is small (0.7mm diameter), circular, slightly elevated above the disc and lying slightly nearer the margin of the disc than the centre. The anus is surrounded by an inner ring of five prominent granules and an outer ring of smaller granules.

The skeleton of the arms comprises marginally and abactinally seven rows of quadrilobed plates. The marginals are not differentiated from the other abactinal plates. The elongated proximal lobe of each plate overlaps the distal, shorter lobe of each preceding plate. The lateral lobes of each plate are not in contact with laterally adjacent plates (except on the distalmost 5mm of the arms) so that the internal connecting plates are visible externally (Fig. 2). A small, pointed spine (about 0.2mm long) occurs towards the distal end of some of the supero- and inferomarginal plates. Between the inferomarginal and adambulacral plates are two series of plates. The first actinal row (adjacent to the adambulacral plates) has two plates corresponding to each inferomarginal plate. Between this row and the inferomarginals is a second row of plates which correspond in number with the inferomarginal plates. These plates are overlapped by the actino-lateral lobe of the inferomarginal immediately above but overlap the two actinal plates immediately below (Fig. 2). None of the skeletal plates bear crystal bodies.

The terminal plate is shorter than broad (1mm x 1.5mm), has a bossed surface and bears two stout, ventrally directed spines on its ventral surface (Fig. 3).

The adambulacral plates bear usually two, but sometimes only one, furrow spine which tapers to an acute tip and is up to 0.7mm long. The spines are connected near their tips by a web of skin. There are no granules between the spines. A subambulacral



spine occurs on each adambulacral plate for up to half R and thereafter on every other plate. These spines are up to 1mm long, flattened, but taper to a rounded point. They are connected at about half their length by a web of skin.

The oral plates each bear four oral spines, continuous with the furrow series, with the innermost the largest. There is a single sub-oral spine adjacent to and behind the fourth oral spine.

The papular areas are large (up to 0.75mm square) but contain usually one or occasionally two papulae. There are eight rows of papulae.

The large, deep boat-shaped pedicellariae (Fig. 4) are not abundant, are scattered and occur abactinally in the papular areas above the superomarginal line where they are exposed but held by a thin layer of skin. The alveoli are about 630µm in length and 430µm deep. The jaws are elongate curved, and laterally compressed, with a sharp, glassy terminal spine and three to four lateral spines each side. The ventral aspect of the terminal spine and the lateral spines are themselves thorny (Fig. 5). Some stages in the development of the pedicellariae can be found distally on the arms. These are almost totally embedded in skin so that only the jaws are visible at the surface.

Colour: The colour of the dry holotype is generally pale straw, but the skeletal plates and the pedicellariae show through white.

Remarks: Within the initial dichotomy in Clark's (1921) key, the genus described herein falls, together with *Copidaster*, *Drachmaster* and *Devania* among the subsequently described genera, within the group possessing longitudinally arranged abactinal plates (i.e. in his groupings AA). Within this group *Oneria* appears to be most closely related to *Leiaster*, *Cistina* and *Devania*, the only genera with a skin-covered skeleton, as opposed to the granulated covering of the plates of the other genera in the group. *Oneria* differs from *Leiaster* and *Cistina* in possessing flat discoidal grains in the skin, in lacking crystal bodies on the skeletal plates and in possessing exposed pedicellariae with large, bulbous, boat-shaped alveolae. The presence of a few, albeit small, marginal spines shows a similarity to the presence of the single, large spine on each of the abactinal and marginal plates of *Cistina*.

Although very similar to *Devania* in general form, skin covering and shape of the pedicellariae, *Oneria* differs from that genus in the presence of two rows of actinal plates, grains in the skin, the arrangement of the furrow and subambulacral spines, the presence of spines on the marginal plates and thorny teeth on the pedicellariae.

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Fig. 6. *Oneria tasmanensis* n. gen. et sp. (holotype; Australian Museum J11715: A, C-G x 3; B x 2.3)

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